

Full Length Research Paper

Consequences of COVID 19 measures on food systems: The case of Senegal and Uganda

Abdoulaye Fofana Fall^{1,2*}, Abibatou Ndiaye², Abbo Hellen Owasa¹ and Joseph Ssekandi³

¹African Center of Excellence in Agroecology and Livelihood Systems, Uganda Martyrs University, P. O. Box 5492, Kampala, Uganda.

²Department of Plant Biology, Cheikh Anta Diop University of Dakar P. O. Box 5005, Dakar, Senegal.

³Department of Agricultural Sciences, Faculty of Agriculture and Environmental Sciences, Kabale University, Uganda.

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The Covid 19 pandemic has not yet yielded enough documentations on food security in Africa. This article aims to take stock of the situation of food systems, based on information relayed by international institutions and official authorities in two countries in sub-Saharan Africa: Senegal and Uganda. The information from articles and reports of international organizations made it possible to draw up a nuanced observation. While agricultural production in the two countries has been relatively unaffected by the restrictive measures taken to limit the spread of the virus, some sectors of production have encountered difficulties in selling their perishable products. But above all, the Covid 19 crisis has highlighted the disconnection between the agricultural production sector, food distribution and the situation of precarious consumers, who in urban and rural areas have taken the brunt of the cessation of economic activities. This health crisis calls for rethinking long-term crisis management measures with an integrated approach to food systems to strengthen their resilience and support the adaptation strategies of actors.

Key words: Covid-19, agriculture, food systems, food security, resilience.

INTRODUCTION

The corona virus (Covid 19) pandemic has put significant strain on food and health systems around the world (Figure 1). The pandemic poses a major threat to food security in Africa (WFP, 2020). The spread of the pandemic disrupts food systems and compromises household food and nutrition security (Amjath-Babu et al., 2020; Barrett, 2020; Béné, 2020; Swinnen, 2020; Torero, 2020). Beyond its impact on health systems, Covid-19 has affected the entire global food system with increased

risk of food insecurity. The Global Food Crises Report, 2020 concluded that more than 183 million people were experiencing stressful levels of acute food insecurity and were at high risk of falling into a level of crisis if faced with additional shocks (WFP, 2020; FSIN, 2020). It is feared that developing countries with poor food systems will be particularly affected (Fall et al., 2021). Recent projections showed that the pandemic is expected to push 38 million people into extreme poverty by 2020 in

*Corresponding author. E-mail: abdallahfall@outlook.fr.

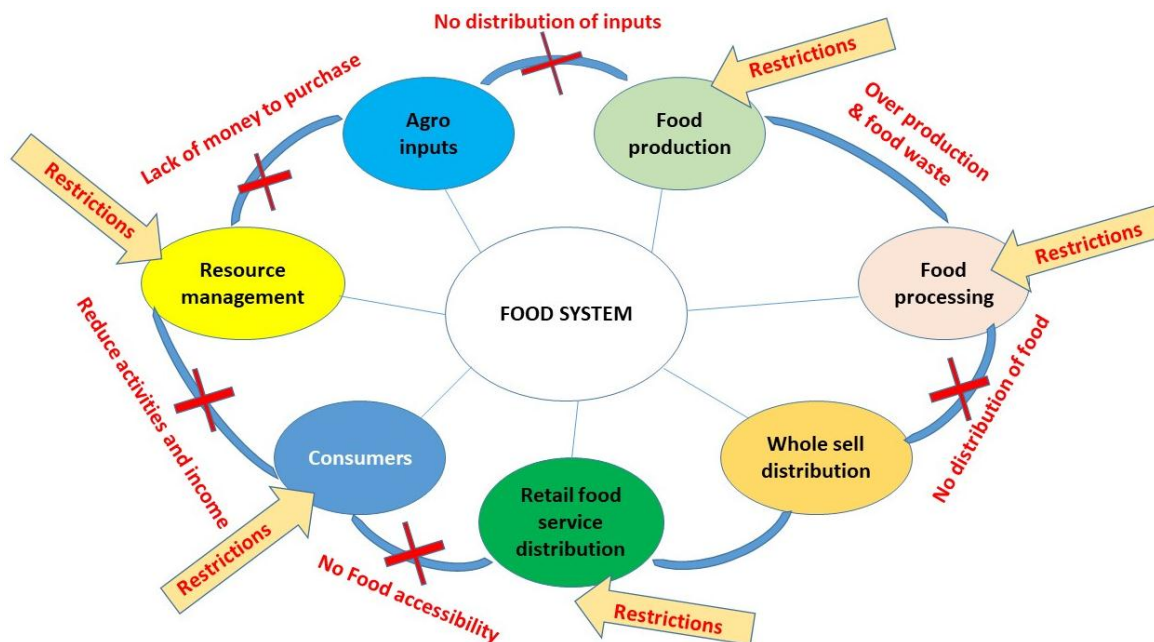


Figure 1. Impact of Covid 19 restrictions on food systems.

sub-Saharan Africa where most producers are smallholder farmers (World Bank, 2020). These smallholder farmers are also often less resilient to shocks and have fewer support structures in place to reduce the impact and increase the rate of recovery from shocks (FAO, 2019). According to Le Nestour et al. (2020), shocks such as Covid-19 are likely to cause disruptions both on the demand side due to loss of workers' income, reduced economic activity, as well as on the supply side due to production-related issues disruptions in input supply, labor availability, and food loss and wastage due to lack of storage facilities and slow evolution transport. There are at least three ways that the pandemic can affect food systems. First, when producers contract the virus or are afraid of contracting the virus, it reduces man power and income-generating activities (Fall et al., 2021). Second, restrictions of movement have disrupted food transportation and livelihood activities, reducing household incomes (Amare et al., 2020; World Bank, 2020). Third, access to food has been affected by disruptions in markets and food value chains (Mahajan and Tomar, 2020).

Like other countries, Senegal and Uganda have also faced the consequences of Covid-19. Thus, to break the chain of transmission of the virus, these two African countries have taken restrictive measures ranging from the ban on means of transport to total confinement. Senegal has taken quick series of measures to stop the transmission of the virus. The governmental authorities have closed urban markets, weekly markets, schools and places of worship. Then, on March 23, 2020, a state of emergency was declared throughout the territory and curfew imposed from 8 p.m. to 6 a.m. This state of

emergency was extended until June 2, 2020. On March 23, three important measures were enforced, that is, curfew; ban on travel between regions; and market closures (MSAS, 2020). Since early July 2021, the number of Covid 19 cases, particularly in the Dakar region, has increased rapidly. This third wave, more deadly than the first two, has not yet prompted authorities to decide on confinement measures which may have negative impacts on the country's economy and on food security of the populations. Indeed, according to FAO, Senegal is among the 45 countries in the world in need of external food aid due to the exacerbation of vulnerabilities increased by the effects of the health crisis linked to the Covid-19 pandemic (FAAPA, 2021). Uganda also imposed one of the first confinements in the continent. The confinement in Uganda is considered one of the most severe in sub-Saharan Africa. Strict measures were announced in March 2020. A ban was also imposed on public and private transport with immediate effect and a curfew was enforced from 7 pm to 6.30 am every day for more than one year. As a result, all non-essential services and activities remained closed for 62 days (from March 25 until the partial lifting of confinement on May 26, 2020). In June 2021, the second wave of Covid 19 surged, leading to a dramatic increase in the number of infections. The government of Uganda introduced restrictions similar to those employed at the beginning of the pandemic. As a result, another confinement was imposed for 42 days and the crowded shops in downtown Kampala were ordered to close.

In addition, according to Amare et al. (2020), the Covid 19 pandemic can affect the food system and household food security. This could happen when, the governments

restrict movements and gatherings in an effort to slow the spread of the virus; this however, disrupts livelihood activities, thereby reducing household incomes (World Bank, 2020). These government measures can also affect food accessibility caused by disruptions in markets and food value chains (Hirvonen et al., 2021; Mahajan and Tomar, 2020). The situation is particularly worrying given the evolving nature of the covid-19 pandemic. While many African countries continue to apply strict guidelines to combat the spread of the virus, little attention has been put on the effects of confinement guidelines to different sectors of the food system and the ability of people to feed themselves. Confinement and restrictions on movement within countries and across borders have disrupted national and local markets for food and agricultural production and inputs and caused sharp reductions in overall economic activity around the world. As the situation evolves, the question arises as to how the pandemic has affected the food systems in Senegal and Uganda? In this context, this article makes a contribution to add to the limited but growing literature on the impact of policy measures to tackle the pandemic on the food system in Senegal and Uganda. And finally recommendations will be proposed in order to have more resilient food systems (Figure 1).

REMINDER ON THE DEFINITION OF FOOD SYSTEM

A food system comprises a wide range of actors and their various activities, that is, production, processing and distribution of food products, integrated into broader social, environmental and economic contexts (FAO, 2018; TEEB, 2015). Food systems today are very complex and diverse, varying widely from local to global, between and within countries (HLPE, 2019; TEEB, 2015). Food systems represent a crucial entry point for addressing food security and nutrition (FAO, 2018; HLPE, 2019). Due to multiple concerns, namely increasing pressure on natural resources, climate change (HLPE, 2019), equity, power, and trade (Béné et al., 2019), diets issues (Willett et al., 2019), the concept of the food system has emerged with renewed interest among researchers and policy makers (Béné et al., 2019), calling for a profound transformation towards sustainability (HLPE, 2019). According to Béné et al. (2019), a sustainable food system revolves mainly around food security, nutrition and health, but increasingly also includes concerns of social justice, democracy, consumption of natural resources and agrobiodiversity (Food-IPES, 2016).

Food system in Senegal and Uganda before Covid 19 outbreak

Senegal is a West African country with 46.7% of the

population being poor, including 57.1% in rural areas where food insecurity remains a constant concern (ANSD, 2014; Van den Broeck et al., 2017). Indeed, 11.3% of the population were food insecure in 2019 (FAO, 2019), and 17% of them malnourished (CLM, 2018). Informal sector is the main source of employment in Senegal, with 81.7% of the population working in that sector (ANSD, 2017). The fishing sector is an engine of the economy providing 16% of national exports in 2018. The majority of the population depends on agriculture which employs 56% of the workforce. The Senegalese agricultural system is dominated by agro-pastoralism with most of the farmers participating having livestock and producing grains (Garrity et al., 2012). However, Senegalese agriculture is predominantly rain-fed, little modernized with chronic vulnerability due to the recurrence of climatic shocks (drought in 2006, 2007 and 2011 and floods in 2009 and 2012) and economic shocks (rising prices food products in 2008, the global financial crisis of 2009 and a further rise in prices in 2011) which increased its vulnerability (SECNSA, 2014). This farming system is less resilient to shocks and has few support structures in place to mitigate shocks (FAO, 2019). In addition, the country must import nearly 70% of its food, mainly rice, wheat and maize (FAO, 2020). This dependence on global markets exposes households to price fluctuations and greater vulnerability.

In Uganda, agriculture is the backbone of the economy. It represents 24% of the GDP, and it is the main source of livelihood for 70% of the population and provides more than 50% of export earnings (UBOS, 2019). Agriculture also provides 60% of raw materials for agro-industry (Fowler and Rauschendorfer, 2019). At the time of independence, Uganda was considered to be self-sufficient about the need of food. Agricultural production flourished to such an extent that there was a food surplus that the country could afford to sell to its neighbors and beyond. In addition, there were cooperative societies through which agricultural products were marketed and distributed throughout the country (Kyazze, 2010). The socialist government in the past also set up national food reserves in Masese and Nalukolongo to mainly store grain so that periods of scarcity could be effectively alleviated. In addition, it pursued a micro food security policy whereby each household was required to maintain a granary with food stocks (Kanyeihamba, 2010). Over time, this image of progress has been severely fractured. The political instability in the country has severely hampered food production and distribution, leading to soaring food prices as well as rationing of available stocks (Kanyeihamba, 2010). The Covid-19 pandemic erupted in China in late 2019 and has spread around the world, reaching Uganda in March 2020. It has found a population struggling with food insecurity and malnutrition. In Uganda, most of the population live by hand-to-mouth and disruption in this routine means people will go hungry (Fall et al., 2021).

IMPACT OF MEASURES TAKEN BY GOVERNMENTS ON THE FOOD SYSTEM

In both countries, the crisis, and the measures put in place to cope with it, have had several effects on the agro-food systems from production to consumption. Responses to the covid-19 crisis were first and foremost taken by each state. Both countries' initial instinctive reaction to the covid-19 crisis was to turn in on themselves and act on their own. As a result, borders have been closed, supply chains have been disrupted, and economic activity has plummeted (Kalinina, 2020).

Impact of restrictive measures on food production

In Senegal, the measures taken to stop the spread of the virus have had considerable economic repercussions. Agriculture is one of the most affected sectors. The pandemic reached in Senegal at a time when agricultural production was at its peak (M.A.E.R., 2020). In the agricultural sector, even if the impact on production is less, it should be noted that the restriction of movements and the closing of borders have resulted in significant economic losses in Senegal (Mathouraparsad et al., 2021). Indeed, agricultural products from the cold off-season, which are perishable, has been severely disrupted, especially with the restriction of movement. However, the difficulties faced by the sector of production were due to low access to inputs like seeds and fertilizers, as well as the availability of labor (Mathouraparsad et al., 2021).

However, these difficulties are those of specialized farmers, but did not concern family farming which are very weak producer dependent on commercial inputs (FAO, 2020; Van Hoyweghen et al., 2021). In addition, the prices of perishable food products (fish, fruits, vegetables, etc.) have collapsed, reducing significantly the livelihood of households (Willy et al., 2020). The pastoral sector was also affected, with significant fodder deficits in Senegal aggravated by restrictions on cross-border (transhumance) and inaccessibility of pastures (Traore et al., 2021).

In Uganda, the Covid-19 pandemic has also resulted in a reduction in meat and related dairy products' supply chain and ranching activities (Jeffer, 2021). Demand for fish has been severely affected by limited exports to international markets (Sihlobo et al., 2021). Agricultural processing activities were moderately affected but milk processing has been affected by the Covid-19 pandemic (Madinah, 2020).

The restrictions on livestock movement have negatively affected income from the sale of animals and their products, which was prohibited in the affected districts. Farmers sold at low prices, especially for perishable foods like bananas, horticultural products and poultry products (FEWS-NET, 2021).

Impact of restrictive measures on food distribution

In Senegal, the ban on weekly markets has severely affected the distribution and supply systems of local food products. The restrictive measures have affected the food security of the population in Senegal whose trade deficit worsened in March 2020, as indicated by the Directorate of Forecasting and Economic Studies (Dieng et al., 2021). All activities required to deliver fish and fish products are subject to indirect effects of the pandemic through health measures, changing consumer demands, market access or related logistical issues to transport and border restrictions (Thompson and Anderson, 2021). This, in turn, has a detrimental effect on fishermen and fish farmers, as well as on the food security and nutrition of populations who depend heavily on fish for animal protein and essential micronutrients (FAO, 2020). Inaccessibility to food were also noted in all regions of Senegal and trade between regions and between neighboring countries through which thousands of tones were transiting was blocked. In the region of Niayes, where irrigation activities is most developed, 5 tons of fruit and vegetables were lost every 2 days (IPAR, 2020). As a result, the sources of income of rural households which were 85.1% in agriculture decreased to 69.5% (IPAR, 2020). For a country dependent on imports like Senegal, market supply is impacted by the reduction in international commercial transit (OIT, 2020). In Senegal, the peak of potato production coincided with restriction of movements, thus between 20 and 50% was lost due to the lack of storage infrastructure and logistical means (Dury et al., 2021). Beyond the losses in the fields or in the warehouses, the producers of potatoes sold off their products cheaply within reach, because they could not export them to neighboring countries or local markets, thus they were not able to reimburse loans contracted (AFDI, 2020; FPDF, 2020).

In Uganda, the pandemic has affected food systems, and particularly affected distribution within the country (Nchanji et al., 2021). The difficulties generated by the Covid 19 pandemic do not come from the availability of agricultural products which is there, nor from trade between Uganda and neighboring countries which has generally been maintained. They are more related to the constraints imposed in particular on port freight, such as the quarantine measures for crews in Kenya (Okerman and von Tigerstrom, 2021).

But also and above all to restrictions on movement observed within the country and between Uganda and its neighboring countries. Freight transport between Kenya and Uganda took ten days compared to four days before Covid 19, resulting in additional costs and loss of perishable products (Agence Ecofin, 2020; Barack and Munga, 2021). Food distribution has been hit with a sharp increase in the number of hunger in rural areas from 24 to 75% of young people who are food insecure (Fall et al., 2021).

Impacts of COVID-19 on food consumption

Covid-19 has impacted the entire food system chain, including consumption. In Senegal, the inflation of the prices of some local staple foods like cereals (rice, corn, mils, etc.) is due to disruptions in the food supply chain in the country. As food was heavily dependent on imports, populations were faced with stock outs (Latané et al., 2021). Thus, the pandemic has caused disruptions in the food market and the labor market, both mainly occupied by actors working in the agricultural sector and the informal sector. These disruptions had a strong impact on the incomes of actors in the agricultural value chain and on the supply of urban markets with cereals, vegetables and fruits, as well as the supply of fish in landlocked areas of the country. An upward trend in prices has been observed since the start of 2021 on the food markets. Senegal belongs to the West African economic community, where agro-food systems are highly regionalized, this has led to a number of bottlenecks which have had a negative impact on the one hand on the availability of food in certain markets, and on the other hand on food loss and waste in production areas. The measures taken by Senegal are structural factors that have strongly disrupted agro-sylvo-pastoral and fishing, economic activities, the normal functioning of national local markets and reduce work opportunities (De Politiques, 2020). This situation accentuates the difficulties of the population to access a rich and diversified diet. The restrictive measures have majorly affected the existence of rural households. Thus, the availability and accessibility to cereals (rice, millet, maize) as well as to oil, sugar, fish, meat and milk, have been disturbed for the center-west of the groundnut basin (between Thiès and Touba) and the eastern area of the country (Tambacounda and Kédougou) (IPAR, 2020). Only 45.3% of rural households had a stock of cereals with a very short duration estimated at 22 days on average. This is a consequence of the poor agricultural season of 2019 added to the shock of the measures induced by Covid-19 (IPAR, 2020). In addition, Senegal has experienced the increase in food prices. For instance, the pandemic has increased the global costs freight, causing increases in the prices of several trade routes and those of container ships. In fact, overwhelmed by demand, maritime carriers have increased their prices to the chagrin of manufacturers and distributors. According to Radolphe Saadé, CEO of CMA CGM, prices will remain high at least until the Chinese New Year, in February 2022 (Leivestad and Schober, 2021). This increase in sea freight tariffs is very bad news for Senegal which is a country that majorly imports food. Therefore, in order not to be excluded from the sea routes of world trade, Senegal is obliged to align with world prices. As a result, food prices had increased after cement, and iron, plastic, poultry feed. Thus, this crisis is different from that of 2008, which was a food supply crisis, when international prices for basic foodstuffs

and oil soared (Dury et al., 2021). Nevertheless, the food crisis is real for many people in Senegal. This crisis is not of supply but rather a crisis of accessibility of food products. Even when food is available in sufficient quantity, it is economically inaccessible to the poorest populations (FAO, 2020).

Much as Uganda is a food basket for East Africa (Loum, 2021) restrictions intended to limit the spread of Covid-19 have also had an impact on food availability. There has been a decrease in the frequency of food deliveries and a scarcity of small, often informal transporters. Transport costs are still expensive, with consequences on the price of products at local markets (CSIS, 2021). The restrictions had significant consequences on the food and nutritional insecurity of the most vulnerable urban households, who often do not have access to supposed traditional markets for supplies. In addition, there is food waste due to the lack of storage and cold chains for perishable products. Restrictions on movement associated with the closure of businesses and the low purchasing capacity of the poor and unemployed have resulted in a shortage of food demand in rural and urban areas. Demand for food was limited during confinement, especially in border areas due to declining incomes and regulated transportation. For instance, in Karamoja, food insecurity is due to restrictions related to Covid-19 which reduced local food availability and household purchasing power (Ayeko-Kümmeth and Schlichte, 2021). Many poor urban households who depend on daily wages to purchase food have also reduced incomes and purchasing capacity due to limited alternative livelihoods.

ACTION TAKEN TO REHABILITATE THE FOOD SYSTEM

To face the health crisis, Senegalese government has initiated an Economic and Social Resilience Program (Prés), endowed with a Response Fund against the effects of the coronavirus, Task-Force Covid-19, with a budget of 1,000 billion FCFA, fund by the government, donors and financial partners (Malick, 2021). This program is divided into two axes to boost the food system. The first axe was based on strengthening agricultural production through the injection of 60 billion CFAP in agriculture sectors. World Bank has also granted Senegal \$ 150 million in to support agricultural resilience and productivity. The horticulture sector has suffered a lot because of the restrictive measures with very high shortfalls in onion, potato, carrot and cabbage production (De Politiques, 2020). Therefore, to rectify the situation, the government, through the Délégation Générale à l'Entreprenariat Rapide (DER), has undertaken a series of actions including the establishment of a credit line of 2 billion FCFA to allow traders to buy onion stocks at Niayes and in the Senegal River Valley. On June 25, 2020, the DER also signed an agreement of 12.5 billion

FCFA with Crédit Mutuel du Sénégal (CMS) and PAMECAS to finance and structure agricultural value chains through access to inputs and agricultural equipment for the benefit of producers in food crops (Cheikh Oumar Ba et al., 2020; IPAR, 2020).

The second axe was for strengthening the social resilience of populations. In this context, the government has undertaken to cover the expenses for the payment of electricity bills of households subscribers for 2 months (15.5 billion FCFA for approximately 975,522 households); the payment of water bills for 670,000 household subscribers for 2 months (amount of 3 billion FCFA); the purchase of food for the benefit of one million households (Amount 69 billion CFAF. Thus, 5,000 tons of rice, 500 tons of sugar, 10,000 liters of oil, 1,000 tons of pasta (vermicelli or macaroni) and soap were distributed to a million households vulnerable to the socio-economic effects of Covid-19. This represents 8 million Senegalese, or half of the population. The eligible people were households in vulnerable situations and those, "without fixed and regular income", which were identified and selected under the supervision of the territorial administration (governors, prefects, and sub-prefects). The third was an economic and social resilience program to ensure the regular supply of food, fuel, medical products, pharmaceuticals, and basic necessities.

In addition to the efforts of the Senegalese government, international organizations like the FAO in association with the United Nations Entity for Gender Equality and the Empowerment of Women (UN Women) and the United Nations Population Fund (UNFPA) have made their contribution through the project called "Panier de la ménagère". This initiative aimed to create a bridge between producers, who could not sell their food products due to restrictive measures, and households facing food and nutrition insecurity (UNFPA, 2020). Thus, 3,000 food kits composed of cereals (rice, millet or maize), meat products (eggs), processed fish products and garden products (onions, vegetables) which were given to households in a situation of nutritional and food insecurity. This project worked with local producers. All the products that make up the food kit were thus acquired from local producers, breeders and processors of cereals and fishery products. An approach that has helped producers to sell their products that they have had difficulty selling because of movement restrictions due to the pandemic. This initiative enabled producers to market their products and resume their production cycle, thus helping to preserve the food system at the national level. This support enriched and diversified food products aimed to contribute to improving the food and nutritional security of vulnerable households affected by the coronavirus pandemic. The project targeted vulnerable households located in rural, urban and peri-urban areas in the regions of Dakar, Kaolack and Louga. This project also supported the financial capacities of beneficiaries via unconditional cash transfers to help reduce their exposure

to covid-19 by breaking the chain of possible contamination during their food supply in markets, street tables, etc. Thanks to this initiative; the economic profitability of the activities of at least 1000 women producers has also been improved (IPAR, 2020).

In Uganda, many emergency measures have been taken to support the food system. This is to maintain the movement of food products to ensure delivery, and support agricultural production capacities and facilitate storage by providing additional space (Nchanji et al., 2021). Street vendors were temporarily allowed, as happened spontaneously in precarious neighborhoods in Kampala. In response to the increased vulnerability caused by the presidential directives to contain the Covid-19 pandemic, the Ugandan government embarked on a campaign to distribute food aid to certain categories of people who are particularly vulnerable because their livelihoods depended on a daily wage and were therefore wiped out with the start of confinement (Ssali, 2020). However, the process was hampered by logistical challenges and the absence of institutional frameworks such as a public food distribution system to coordinate government efforts in response to crises (Blay Palmer, 2021).

Following Covid-19 measures that have restricted movement since June 2021, limited household income sources, most refugees in Uganda (1,494,505 refugees) (OPM, 2021), find it difficult to meet their food needs. So to help these thousands of refugees, WFP provided assistance in cash and / or in kind equivalent to a 60% ration until September 2020; at least to all beneficiaries while those who arrived within less than three months have the chance to receive a full ration. During the second wave of Covid 19, the Ugandan government provided a one-time cash assistance ration of 100,000 UGX which targeted around 530,000 households in Kampala, 11 cities and 42 municipalities from early July 2021. However, the cash assistance was unsustainable; provided only short-term support, but it could not cover all households in need and was insufficient to meet food needs during the 42-day lockdown (FEWS NET, 2021).

CONCLUSION

It is important to note that this covid-19 pandemic has strained the national food systems of Senegal and Uganda. Indeed, the closure of borders and the restriction of the movement of people have blocked traditional national food chains, thus preventing the supply of food processing factories and local populations receiving processed food products. The Covid-19 crisis has thus highlighted the complex relationship between the poor health systems and food systems, especially supply chains at the national level. Food systems, from production, distribution and consumption, have been strongly affected by restrictive measures thus, this COVID

19 crisis has highlighted the known disconnection between sufficient agricultural production and limited access to food for millions of people. After one year, the failures of the food systems related to Covid-19 and the weakness of government responses demonstrate that the food systems of the two countries were not able to respond to the types of shocks caused by the pandemic. However, the risks of this kind of shocks or natural disaster to happen in the future are high. Therefore, there is an urgent need of transforming these poor food systems towards sustainable food systems, where resilience is the key word.

RECOMMENDATIONS

One of the main lessons learned from this Covid-19 pandemic is the imperative need to initiate long-term political and strategic reflection with implications for the significant reduction of chronic external food dependence in the food and nutrition systems of Senegal and Uganda by offering more support to local production and food processing in these countries. Such food systems, to be sustainable, must reflect the extraordinary potential of local territorial institutions to stimulate the well-being of people by providing them with a range of social, economic and environmental functions and services that are essential for all society. Governmental authorities can use different strategies to contribute to the sustainability of food systems and their resilience in the event of a shock. To do this, we offer the following recommendations:

- (i) To encourage producers to shift their efforts to food crops to supply local markets in order to improve the food sovereignty desired by governments.
- (ii) To strengthen the rules of hygiene, traceability and product control at market level. This means, for example, improving the regulation and supervision of the sale of animals and meat from wild animals.
- (iii) To draw up regulations providing for actions in the event of a health crisis, develop storage and conservation capacities, including fresh produce, by creating processing and packaging areas, or even facilitate producers to access markets with dedicated sales areas.
- (iv) To encourage local communities to maintain or develop urban and peri-urban agriculture. This will help diversify the supply by maintaining access to highly perishable fresh produce, especially in times of crisis. And to strengthen short circuits; urban and peri-urban agriculture also enables disadvantaged populations to produce part of their food and sell the surplus if necessary, thus generating income.
- (v) To establish local public food security policies to best anticipate future health, security or climatic crises.
- (vi) To know the local production basins, the supply flows according to the type of products and the actors

concerned by using the territorial mapping tools of the production basins and local flows, but also the actors involved in the transport and production of goods.

(vii) To strengthen the resilience of urban food systems by rethinking a multi-sectoral approach from agriculture to markets and localities.

(viii) To develop long-term sustainable strategies to meet the challenges facing the health and agri-food sectors.

(ix) To solve the underlying problems of food security and malnutrition, to fight against rural poverty, in particular through the creation of more and better jobs in the rural economy, the extension of social protection to all to facilitate safe migration routes and to promote the formalization of the informal economy.

(x) To rethink the future of our environment and tackle climate change and environmental degradation in an ambitious and urgent manner in order to protect the health, livelihoods, food security and nutrition of all.

(xi) To support agricultural and livestock activities by facilitating access to affordable credit for organized rural households (women, young people, cooperative societies), by providing improved agricultural inputs by making water available for production, by strengthening storage facilities and minimizing post-harvest losses, storage and transportation to improve the supply chain of food crops, cash crops and livestock products.

(xii) To support the agricultural processing industries to increase the production of what is imported and which can be produced locally.

(xiii) To strengthen the resilience of food systems in developing countries through regional cooperation by strengthening the national agricultural reserve mechanism so that it is more flexible and quickly mobilized for the urgent food and nutritional needs of populations in rural areas, the creation of an innovation hub to strengthen the productivity of local agricultural and food systems.

(xiv) To maintain cross-border food supply chains open in the event of a pandemic.

(xv) To create corridors for the flow of food or maintaining open-air markets with less restrictive measures than closing borders and markets.

(xvi) To build up security stocks for commodities to prevent supply disruptions.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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